

Productivity and Technology

The Bureau's programs of productivity measurement have several major aims: To measure productivity trends in the economy, major sectors, and individual industries; to analyze these movements in order to understand the factors underlying productivity change; and to develop comparable measures of productivity and other economic indicators for other countries.

Programs in this office are authorized by an act of June 7, 1940 (29 U.S.C. 2b), which requires that the Bureau "make continuing studies of productivity and labor costs in manufacturing, mining, transportation, distribution and other industries."

For additional information on programs in this section, call (202) 691-5600 or see our website.

Labor Productivity Measures

This program develops measures for the business, nonfarm business, and manufacturing sectors of the economy as well as for nonfinancial corporations.

Data available

- Quarterly and annual indexes and percent changes for output per hour of all persons, unit labor costs, and unit nonlabor payments. Indexes, percent changes, and levels for related measures, such as real and current dollar compensation per hour, current dollar output, and hours of all persons.
- For nonfinancial corporations, data include indexes and percent changes for unit nonlabor costs, total unit costs, and unit profits.
- Data for all persons engaged in the sector as well as for employees alone.
- Monthly employment and employee-hour data for selected industry subsectors.

Coverage

- Measures for the business and nonfarm business sectors begin with 1947. Measures for nonfinancial corporations begin with 1958. Measures for the manufacturing sector begin with 1949. Measures of employment for industries at a more disaggregated level begin with 1947.

Sources of data

- Labor input data based mainly on BLS Current Employment Statistics and Current Population Survey data.
- Output data for business, nonfarm business, and nonfinancial

corporate sectors are based on series prepared as part of the National Income and Product Accounts by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce. For manufacturing, output data are based on current-dollar value of shipments data provided by the U.S. Bureau of the Census, BLS producer price indexes, price and input-output data from BEA, and Federal Reserve Board indexes of industrial production.

Reference period

- Productivity and related measures: Quarterly and annual data.
- Employment and employee-hour measures: Monthly, quarterly, and annual data.

Forms of publication

- Quarterly news release—*Productivity and Costs*—preliminary release for business, nonfarm business, and manufacturing within six weeks after the reference period; revised release with preliminary data for nonfinancial corporations within 10 weeks after the reference period. Current news release available electronically on the Internet at <http://stats.bls.gov/news.release/prod2.txt>, and via BLS "fax-on-demand" service at (202) 691-6325.
- Special analytical articles in the *Monthly Labor Review*.
- Statistical tables—quarterly and annual productivity and costs data monthly in the *Monthly Labor Review*; annual productivity and costs data in the *Report on the American Workforce*; and monthly employee-hours data in *Employment and Earnings*.
- Computer listings and data diskettes of quarterly and annual data are available on request.

- Data available electronically—Productivity and costs indexes and percent changes available on the Bureau’s database, LABSTAT. Monthly employment and employee-hours data also available at <http://stats.bls.gov/special.requests/opt/tableb10>
- E-mail requests—contact staff at dprweb@bls.gov

Uses

- Economic indicator.
- Aid economic policymakers in the assessment of current economic activity and in economic analysis.
- Aid Bureau of Economic Analysis in compiling compensation measures for National Income and Product Accounts.
- Studies of relationships among productivity, wages, prices, and employment.
- Aid in understanding sources of economic growth.

Multifactor Productivity Measures

This program develops indexes of multifactor productivity and related data for major sectors of the economy and for manufacturing industries at the 2-digit Standard Industrial Classification level. For major sectors, multifactor productivity is measured as output per combined units of capital and labor inputs. For manufacturing industries, multifactor productivity is sector output per combined units of capital, hours, energy, materials and purchased business services.

Data available

- Annual indexes of multifactor productivity and output per unit of capital services.
- Annual measures of major sector outputs and inputs of capital services, composition adjusted labor services, and of combined labor and capital inputs.
- Annual multifactor productivity measures for public utilities and manufacturing industries, as well as the associated output and inputs of capital, hours, energy, materials, and purchased business services inputs.

Coverage

- Private business, private nonfarm business, aggregate manufacturing, and 2-digit SIC industries within manufacturing and public utilities, beginning with 1948.

Sources of data

- Labor hours data are based mainly on BLS establishment and household surveys. The Hours at Work Survey con-

verts hours paid to hours at work. Labor composition data for major sectors only are largely based on household surveys and the decennial census.

- Output and other input data based on series prepared as part of the National Income and Product Accounts by the Bureau of Economic Analysis, U.S. Department of Commerce. Capital data based on measures of equipment and structures, land, and inventories prepared by the Bureau of Labor Statistics from data prepared by the Bureau of Economic Analysis and U.S. Department of Agriculture. Measures of energy, materials, and purchased business services inputs are from the Annual Survey of Manufactures, input-output tables provided by the Bureau of Economic Analysis, and annual input-output tables developed by this office.

Reference period

- Calendar year.

Forms of publication

- Annual news release—*Multifactor Productivity Trends*. Electronic access available.
- Periodic review articles in the *Monthly Labor Review*.
- Bulletins, special analytical articles in the *Monthly Labor Review*, and staff papers.
- Unpublished measures—available on request—containing information on the Hours at Work Survey and components of the labor, capital, and output measures prepared as part of the multifactor program.
- Data available electronically from LABSTAT include indexes of multifactor productivity and outputs and inputs for major sectors and manufacturing industries.
- Multifactor productivity homepage on the web: <http://stats.bls.gov/mprhome.htm>
- E-mail requests—contact staff at dprweb@bls.gov.

Uses

- Economic indicator.
- Basis for research on the sources of productivity advance and the identification of policy options, which can affect the pace of productivity change.
- Aid in understanding trends in output per hour of all persons.
- Provides a more comprehensive productivity measure, supplementing existing economic indicators, that incorporates capital in addition to labor inputs.

Major research in progress

- Continued investigation of factors that affect labor input, for example, how changes in the levels of education and work experience change the effective quantity of labor services per hour.
- Investigation of the effect of research and development on productivity growth.
- A county level analysis of the impact of public sector infrastructure on manufacturing productivity.
- Improvements to output concepts in selected industries and resulting effects on productivity measures.
- Research on the treatment of inventories in a growth accounting framework. Investigation of the role of inventories as an input and the measurement of their contribution to output and productivity.

Industry Productivity Measures

This program develops annual indexes of productivity for individual industries.

Data available

- Annual indexes of output per hour, output per employee, output, employment, and hours.
- Annual indexes of industry multifactor productivity that include labor, capital, and intermediate purchases inputs.

Coverage

- Output per hour measures for industries in manufacturing, mining, transportation, public utilities, trade, and services.
- Multifactor productivity measures, relating output to the combined inputs of capital, labor, and intermediate purchases for 10 industries in manufacturing and transportation.

Sources of data

- Output data from the Bureau of the Census, various other Federal Government sources and trade associations.
- Labor input data from BLS establishment and household surveys, the Bureau of the Census, and other Federal Government sources.
- Capital and intermediate purchases inputs for multifactor productivity are based on measures of equipment and structures, land, and inventories prepared by BLS from data prepared by the Bureau of Economic Analysis. Measures of purchased intermediate inputs are from the Annual Survey of Manufactures, U.S. Bureau of the Census,

and input-output tables provided by the Bureau of Economic Analysis.

Reference period

- Calendar year.

Forms of publication

- Annual news release.
- Annual bulletin—*Productivity Measures for Selected Industries*.
- Articles in the *Monthly Labor Review* that analyze indexes for newly covered industries.
- On the Internet, through the BLS homepage (<http://www.bls.gov>).

Uses

- Economic indicator.
- Aid economic policymakers in assessment of economic changes in individual industries.
- Analysis of overall economic activity.
- Studies of the relationships among productivity, wages, prices, and employment by industry.
- Projections of industry employment levels.
- Assists forecasters in analyzing economic growth in industries and the economy.

Major research in progress

- Continued development of labor productivity measures in service, trade, finance, transportation, and manufacturing industries.
- Development of multifactor measures for selected industries.

International Comparisons

The Bureau's comparative studies of international economic data cover labor force and unemployment, hourly compensation costs, and various other economic indicators, in addition to productivity comparisons.

Productivity and Unit Labor Costs:

This program develops comparisons of productivity and unit labor costs to assess U.S. economic performance relative to other countries.

Data available

- Indexes of output per hour, hourly compensation, and unit labor costs in manufacturing, including trade-weighted relative measures.

- Relative trends and levels of real gross domestic product per capita and per employed person.
- Indexes of real hourly and weekly compensation.

Coverage

- All manufacturing—12 industrial countries from 1950 (U.S. from 1977) plus Korea and Taiwan (unit labor costs only) from 1970.
- Real gross domestic product per capita and per employed person—14 countries from 1950.

Source of data

- Foreign and international statistical publications.

Reference period

- Calendar year.

Forms of publication

- BLS news releases.
- Bulletins as completed.
- Articles in the *Monthly Labor Review*.
- Selected data published in the *Monthly Labor Review*, the *Economic Report of the President*, and the *Statistical Abstract of the United States*.
- Data files on diskette and tape.
- Internet at <http://www.bls.gov>

Uses

- Comparison of differences in labor productivity and labor cost trends between the United States and other countries.
- Analysis of international competitiveness and underlying conditions affecting U.S. balance of trade.

Major research in progress

- Development of comparisons of manufacturing multifactor (capital and labor) productivity.
- Expand country coverage.

Labor Force and Unemployment:

This program develops comparisons of labor force and unemployment among major industrial countries.

Data available

- Labor force, employment, and unemployment data for foreign countries, by selected characteristics, approximating U.S. concepts.

Coverage

- Ten industrial countries, generally from 1959.

Source of data

- Foreign and international statistical publications and unpublished data provided by foreign statistical offices.

Reference period

- Calendar year, plus monthly and quarterly estimates of unemployment rates.

Forms of publication

- Bulletins published on comparative data, factors affecting unemployment, and methods of measurement.
- Articles in the *Monthly Labor Review* periodically for unemployment measures; as completed for special studies.
- Selected data published in the *Monthly Labor Review*, the *Economic Report of the President*, and the *Statistical Abstract of the United States*.
- Data files on diskette and tape.
- Internet at <http://www.bls.gov>

Uses

- Comparison of differences in U.S. and foreign labor force, employment, and unemployment.
- Analysis of causes of unemployment.
- Formulation of employment policies and programs.

Major research in progress

- Expand country coverage.

Hourly Compensation Costs:

This program develops comparisons of compensation costs per hour worked for production workers in manufacturing industries.

Data available

- Level comparisons of total hourly compensation costs in manufacturing industries.
- Level comparisons of hourly direct pay and pay for time worked in total manufacturing.
- Information on the structure of compensation in manufacturing in selected countries.
- Trade-weighted average compensation costs for foreign economic groups.

Coverage

- Approximately 30 countries or areas of importance to U.S. trade and 39 component manufacturing industries.

Source of data

- Foreign and international statistical publications.

Reference period

- Calendar year.

Forms of publication

- BLS news releases.
- Articles in the *Monthly Labor Review*.
- Selected data published in the *Statistical Abstract of the United States*.
- Internet <http://www.bls.gov>
- Data files on diskette and tape.

Uses

- Evaluate the competitive position of the United States in international trade.
- Compare differences in the structure of compensation costs.

Major research in progress

- Expand country coverage.

Other Economic Indicators:

This program covers comparisons of consumer prices, indicators relating to the family, union membership, industrial disputes, and other economic indicators.

Data available

- Indexes and rates of change in consumer prices.
- Marriage and divorce rates, births to unmarried women, household composition, and single parent families.
- Union membership and density rates (union membership as a percent of total civilian wage and salary workers).

Coverage

- Industrial countries.

Source of data

- Foreign and international statistical publications.

Reference period

- Annual, plus quarterly or monthly data for consumer prices.
- For family statistics, selected years from 1960 forward.
- Union membership, selected years from 1955 forward.

Forms of publication

- Data files on diskette or tape—selected series.
- Selected data published in the *Statistical Abstract of the United States*.
- Articles in the *Monthly Labor Review*.

Selected Publications

Productivity studies

Productivity Measures for Selected Industries, Bulletin 2491 (1997).

A BLS Reader on Productivity, Bulletin 2474 (1996).

“BLS Modernizes Industry Labor Productivity Program,” *Monthly Labor Review*, July 1995.

Labor Composition and Productivity Growth, 1948-90, Bulletin 2426 (1993).

The Impact of Research and Development on Productivity Growth, Bulletin 2331 (1989).

Trends in Multifactor Productivity, 1948-81, Bulletin 2178 (1983).

International comparisons

“U. S. and Foreign Productivity and Unit Labor Costs,” *Monthly Labor Review*, February 1997.

International Labor Comparisons Among the G-7 Countries: A Chartbook, BLS Report 890, May 1995, (out of print).

“Manufacturing Costs, Productivity and Competitiveness,” *Monthly Labor Review*, October 1994.

Data Files on Diskette or the Internet

Productivity and cost indexes

Indexes of 15 labor productivity and cost measures with a 1992 base are available for business; nonfarm business; nonfinancial corporations; manufacturing, durable goods; and manufacturing, nondurable goods. These measures are available quarterly and annually, most beginning in 1947. Indexes of labor productivity, also with a 1992 base, are available for nonfinancial corporations beginning in 1958. Also available are annual multifactor productivity measures, beginning in 1948. Additional labor productivity and cost measures, as well as new multifactor productivity measures, are available upon special request. All inquiries may be addressed to: Office of Productivity and Technology, Bureau

of Labor Statistics, Room 2150, 2 Massachusetts Ave., NE., Washington, D.C. 20212-0001. The staff also can be reached by telephone at (202) 691-5606 or by e-mail at dprweb@bls.gov

Productivity: Industry

Indexes of output per hour, output per employee, output, hours, and employment with a 1987 base are available for industries in manufacturing, mining, transportation, public utilities, trade, and services. Many of these annual measures begin in 1958; the remainder begins more recently. Indexes of multifactor productivity and costs, also with a 1987 base, are available for 10 selected industries.

International comparisons

Labor force, employment, unemployment, and related measures, approximating U.S. concepts, are available on an annual basis for 10 countries, beginning in 1959 for most series. Indexes of manufacturing productivity, hourly compensation, unit labor costs, and related measures are available on an annual basis beginning in 1950 for 12 countries. Data series for hourly compensation costs for production workers in total manufacturing and approximately 39 component industries are available on an annual basis from 1975 for approximately 30 countries or areas. Consumer price indexes are available annually from 1950 for 13 countries, and monthly or quarterly from 1982 for 10 countries.